August 9, 2001

MEMORANDUM

SUBJECT: Addendum to the Revised Residential Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Disulfoton. D276829.

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Attached please find the revised Tables 4 and 5 for the disulfoton residential risk assessment chapter. These tables supercede tables 4 and 5 from the May 31, 2001 document titled "**Revised** Residential Exposure Assessment And Recommendations For The Reregistration Eligibility Decision Document For Disulfoton" (S. Recore and C. Jarvis memo, D275170). The only changes in these tables are the correction of the inhalation unit exposure value for the Bayer Advanced Garden 2-in-1 Systemic Rose and Flower Care® from 0.013 μg/lbs ai to 13 μg/lbs ai and the corresponding inhalation risk values.

Short-term inhalation MOEs and total short-term MOEs associated with the use of Bayer Advanced Garden 2-in-1 Systemic Rose and Flower Care® are still considered to be above the Agency's level of concern (MOEs > 100).

Table 4: Residential Handler Dermal and Inhalation Exposures to Disulfoton at Baseline

Exposure Scenario (Scenario #)	Baseline Dermal Unit Exposure (mg/lb ai)[a]	Baseline Inhalation Unit Exposure (μg/lb ai)[b]	Maximum Application Rate[c]	Crop Type or Target[d]	Amount Handled Per Day[e]	Daily Dermal Exposure (mg/day)[f]	Daily Inhalation Exposure (mg/day)[g]
Mixer/Loader/Applicator Exposure							
Loading/applying granulars using a belly grinder (1)	110	62	0.3 lb ai/1000 ft^2	Flower Gardens (pre-planting)	1,000 ft^2	33	0.019
			0.069 lb ai/1000 ft^2	Vegetable Gardens (pre-planting)	1,000 ft^2	7.8	0.0043
Loading/applying granulars using a push-type spreader (2)	0.68	0.91	0.069 lb ai/1000 ft^2	Vegetable Gardens	1,000 ft^2	0.047	6.3E-5
			0.3 lb ai/1000 ft^2	Flower Gardens	1,000 ft^2	0.20	2.7E-4
			0.01 lb ai/4 ft shrub	Ornamental Shrubs	25 shrubs	0.17	2.3E-4
			0.0013 lb ai/bush	Roses	50 bushes	0.043	5.7E-4

Table 4: Residential Handler Dermal and Inhalation Exposures to Disulfoton at Baseline (continued)

Exposure Scenario (Scenario #)	Baseline Dermal Unit Exposure (mg/lb ai)[a]	Baseline Inhalation Unit Exposure (μg/lb ai)[b]	Maximum Application Rate	Crop Type or Target[d]	Amount Handled Per Day[e]	Daily Dermal Exposure (mg/day)[f]	Daily Inhalation Exposure (mg/day)[g]
Loading/applying granulars using a spoon, measuring scoop, shaker can or by hand (3)	3.5	0.045	0.069 lb ai/1,000 ft^2	Vegetable Gardens	1,000 ft^2	0.24	3.1E-6
			0.3 lb ai/1000 ft^2	Flower Gardens	1,000 ft^2	1.04	1.4E-5
			0.01 lb ai/4 ft shrub	Ornamental Shrubs	25 shrubs	0.86	1.1E-5
			0.00034 lb ai/6" pot	Potted Plant	20 pots	0.023	3.0E-7
			0.0013 lb ai/bush	Roses	50 bushes	0.22	2.8E-6
Loading/applying Bayer Advanced Garden 2-in-1 Systemic Rose and Flower Care® Disulfoton 1% granulars using a measuring cup/lid (4)	0.03	13	0.21 lb ai/1000 ft^2	Flowerbeds	1,000 ft^2	0.0063	2.7E-3
	0.092	13	0.01 lb ai/4 ft. bush	Shrubs	25	0.023	3.3E-3
	0.092	13	0.0013 lb ai/bush	Roses	50 bushes	0.0060	8.5E-4
Application of insecticidal spikes (5)	No Data	No Data	No Data	No Data	No Data	No Data	No Data

Table 4: Residential Handler Dermal and Inhalation Exposures to Disulfoton at Baseline (continued)

Footnotes:

[a] Baseline Dermal Unit Exposure represents short pants, short sleeved shirt, no gloves, and open mixing/loading.
[b] Baseline Inhalation Exposure represents no respirator.
[c] Application Rates are maximum rate values found on disulfoton labels (EPA Reg. No. 4-153, 3125-517, 7401-323, 8660-191, 9404-3, 46260-2, 46260-12, 46260-35).
[d] Crop Type or Target provides a general description of the intended uses of disulfoton. Separate categories are presented because of the distinct differences in application rates and amount handled.
[e] Daily Amount Handled values are default estimates from Exposure SAC Policy 12, or the best professional judgement of square footage, or number of bushes, shrubs, or pots that could be treated in a single day for each exposure scenario. [12]
[f] Daily Dermal Exposure (mg/day) = Unit Exposure (mg/lb ai) * Appl. rate * Amount Handled per day.
[g] Daily Inhalation Exposure (mg/day) = Unit Exposure (µg/lb ai) * (1mg/1000 µg) Conversion * Application Rate (lb ai/A) * Acres treated (acres/day).
[h] Residential application of disulfoton using a belly grinder are applicable for pre-plant treatment applications only.
[I] Unit exposure data for application of granules by hand were used as surrogate values for these scenarios.
[j] Application rates for small vegetable gardens are based on 38-inch row spacing (EPA Reg. No. 7401-323).

Table 5: Residential Handler Short-term Risks from Disulfoton at Baseline

Exposure Scenario (Scenario #)	Crop Type or Target[a]	Amount Handled Per Day[b]	Maximum Application Rate	Baseline Dermal		Baseline Inhalation		Baseline Total
				Daily Dose (mg/kg/day)	Short-term MOE[d]	Daily Dose (mg/kg/day)[e]	Short-term MOE[f]	Short-term MOE[g]
Mixer/Loader/Applicator Risks								
Loading/applying granulars using a belly grinder (1)	Flower Gardens (pre-planting)	1,000 ft^2	0.3 lb ai/1000 ft^2	0.47	1.1	2.7E-4	170	1.1
	Vegetable Gardens (pre-planting)	1,000 ft^2	0.069 lb ai/1000 ft^2	0.11	4.6	6.1E-5	740	4.6
Loading/applying granulars using a push-type spreader (2)	Vegetable Gardens	1,000 ft^2	0.069 lb ai/1,000 ft^2 [h]	6.7E-4	750	1.0E-6	5.0E4	740
	Flower Gardens	1,000 ft^2	0.3 lb ai/1,000 ft^2	0.0029	172	4.0E-6	1.2E4	170
	Ornamental Shrubs/ Small Trees	25 shrubs	0.01 lb ai/4 ft. shrub	0.0024	210	3.0E-6	1.4E4	200
	Roses	50 bushes	0.00126 lb ai/bush	6.1E-4	820	1.0E-6	5.5E4	810

Table 5: Residential Handler Short-term Risks from Disulfoton at Baseline (continued)

Exposure Scenario (Scenario #)	Crop Type or Target[a]	Amount Handled Per Day[b]	Maximum Application Rate	Baseline Dermal		Baseline Inhalation		Baseline Total
				Daily Dose (mg/kg/day)[c]	Short-term MOE[d]	Daily Dose (mg/kg/day)[e]	Short-term MOE[f]	Short-term MOE[g]
Mixer/Loader/Applicator Risks								
Loading/applying granulars using a spoon, measuring scoop, shaker can or by hand (3)	Vegetable Gardens	1,000 ft^2	0.069 lb ai/1,000 ft^2 [h]	0.0034	150	4.4E-8	1.0E6	150
	Flower Gardens	1,000 ft^2	0.3 lb ai/1,000 ft^2	0.015	34	1.9E-7	2.3E5	34
	Ornamental Shrubs/ Small Trees	25 shrubs	0.01 lb ai/4 ft. shrub	0.012	41	1.6E-7	2.8E5	41
	Potted Plants	20 pots	0.00034 lb ai/6" pot	3.3E-4	1500	4E-9	1.0E7	1500
	Roses	50 bushes	0.00126 lb ai/bush	0.0031	160	4.1E-8	1.1E6	160

Table 5: Residential Handler Short-term Risks from Disulfoton at Baseline (continued)

Exposure Scenario (Scenario #)	Crop Type or Target[a]	Amount Handled Per Day[b]	Maximum Application Rate	Baseline Dermal		Baseline Inhalation		Baseline Total
				Daily Dose (mg/kg/day)[c]	Short-term MOE[d]	Daily Dose (mg/kg/day)[e]	Short-term MOE[f]	Short-term MOE[g]
Mixer/Loader/Applicator Risks								
Loading/applying Bayer Advanced Garden 2-in-1 Systemic Rose and Flower Care® Disulfoton 1% granulars using a measuring cup/lid (4)	Flowerbeds	1000 ft^2	0.21 lb ai/1000 ft^2	9.0E-5	5600	3.9E-5	1.2E3	960
	Shrubs	25 shrubs	0.01 lb ai/4 ft shrub	3.3E-4	1500	4.6E-5	9.7E2	490
	Roses	50 bushes	0.0013 lb ai/bush	9.0E-5	5900	1.2E-5	3.7E3	1900
Application of insecticidal spikes (5)	Roses/Trees	No Data	No Data	No Data	No Data	No Data	No Data	No Data

Footnotes:

[a] Crop Type or Target provides a general description of the intended use of various products containing disulfoton. Separate categories are presented because of the distinct differences in application rates and acres treated.

[b] Amount Handled Per Day values are from default estimates of square footage or number of bushes, shrubs, or pots treated a single day for each exposure scenario of concern.

[c] Daily Dermal Dose (mg/kg/day) = Daily Dermal Exposure (mg/day)/ Body weight (70 kg).

[d] Short-term Dermal MOE = NOAEL (0.5 mg/kg/day)/ Daily Dermal Dose (mg/kg/day).

[e] Daily Inhalation Dose (mg/kg/day) = Daily Inhalation Exposure (mg/day)/ Body weight (70 kg).

[f] Short-term Inhalation MOE = NOAEL (0.045 mg/kg/day)/ Daily Inhalation Dose (mg/kg/day).

[g] Total Short-term MOE = 1/ [(1/ Short-term Dermal MOE) + (1/ Short-term Inhalation MOE)].

[h] Application rates for small vegetable gardens are based on 38-inch row spacing (EPA Reg No. 7401-323).